HDR8X8
HDR16X16

8/16-port HDMI Matrix Switch
with Front Panel, RS-232, IR, and TCP/IP Control

HDCP COMPLIANT

Installation Manual

Smart-AVI
SMART AUDIO VIDEO INNOVATION

Made in the U.S.A.

www.smartavi.com 1-800-AVI-2131

What's in the Box?

PART NO.	QTY	DESCRIPTION
HDR8X8/HDR16X16	1	HDMI 8X8/16x16 Router
CCPWR06	1	6ft Power Cord

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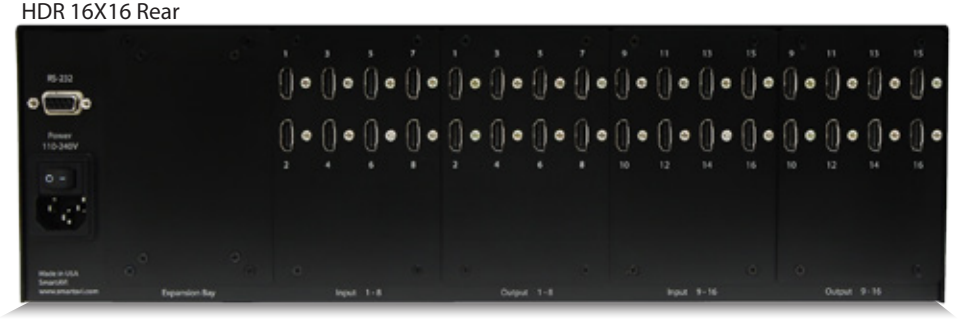
HDR 16X16 Front

HDR 16X16 Rear



Introduction

The HDR8X8/HDR16X16 conforms to the HDMI (High Definition Media Interface) standard with HDCP compliance and provides a connection to view any eight/sixteen HDMI video sources on any combination of eight/sixteen video displays. The matrix configuration provides maximum flexibility, allowing switching between any high-definition source and/or display. The HDR8X8/HDR16X16 provides HDMI output up to 40 feet and at HDTV resolutions of 480p, 720p, 1080i and 1080p. The system works with HD-DVD players, TiVo systems, HT PCs, and satellite set-top boxes that connect to an HDMI display. Users can switch to any source locally or remotely via Front Panel, RS-232, IR, or TCP/IP connection. It is controlled by Windows®-based software that is easy to understand and simple to use – a cornerstone of all SmartAVI products.

Features

- Switches 8/16 HDMI inputs with 8/16 HDMI outputs
- Sources can be routed independently to displays
- Switching controlled via the front panel, RS-232, IR and TCP/IP
- Supports high definition video resolutions of 480p, 720p, 1080i and 1080p
- Supports 7.1 Digital Surround Sound Audio
- HDCP and HDMI 1.4 compliant
- Supports EDID for total control of compliant displays
- Learn EDID from any display
- Delivers uncompressed digital video with zero signal loss
- Outputs HDMI up to 40 feet (with high-quality 24AWG or better cable)
- Rack-mountable
- Front panel can be locked to prevent accidental changes

Technical Specifications

VIDEO	
HDTV Resolutions	480p, 720p, 1080i, 1080p, Supports all DVI-D Resolutions
TV Resolution	480i
Input Interface	(8/16) HDMI Type A 19-pin Female TMDS
Output Interface	(8/16) HDMI Type A 19-pin Female TMDS
Input Cable Length	Up to 40 ft.
Output Cable Length	Up to 40 ft.
OTHER	
Warranty	Limited 1 Year Parts and Labor
Control	Panel, RS-232, IR, USB and TCP/IP
Power	Internal 100-240 VAC
Dimensions	19"W x 5.25"H (2U) x 7"D
Weight	10 lbs.
HDR 16X16 Approvals	FCC, CE, RoHS Compliant
Power Supply Approvals	UL, CE, CSA, CEC, RoHS
ENVIRONMENTAL	
Operating Temperature	0 to +40° C (+32° to 104° F)
Operating Humidity	10% to 85% (Non-condensing)
Storage Temperature	-20° to +60° (+20° to +140° F)
Storage Humidity	10% to 85% (Non-condensing)

IMPORTANT: ***Each input and output can support up to 10mA/5VDC. Do not connect extenders that are powered by HDMI.***

Application Diagram

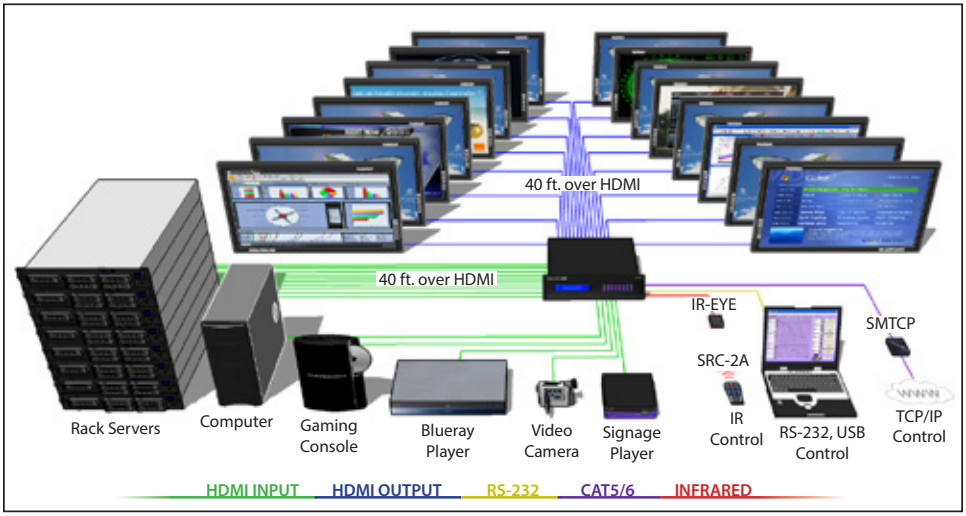


Diagram for HDR 16X16 Shown

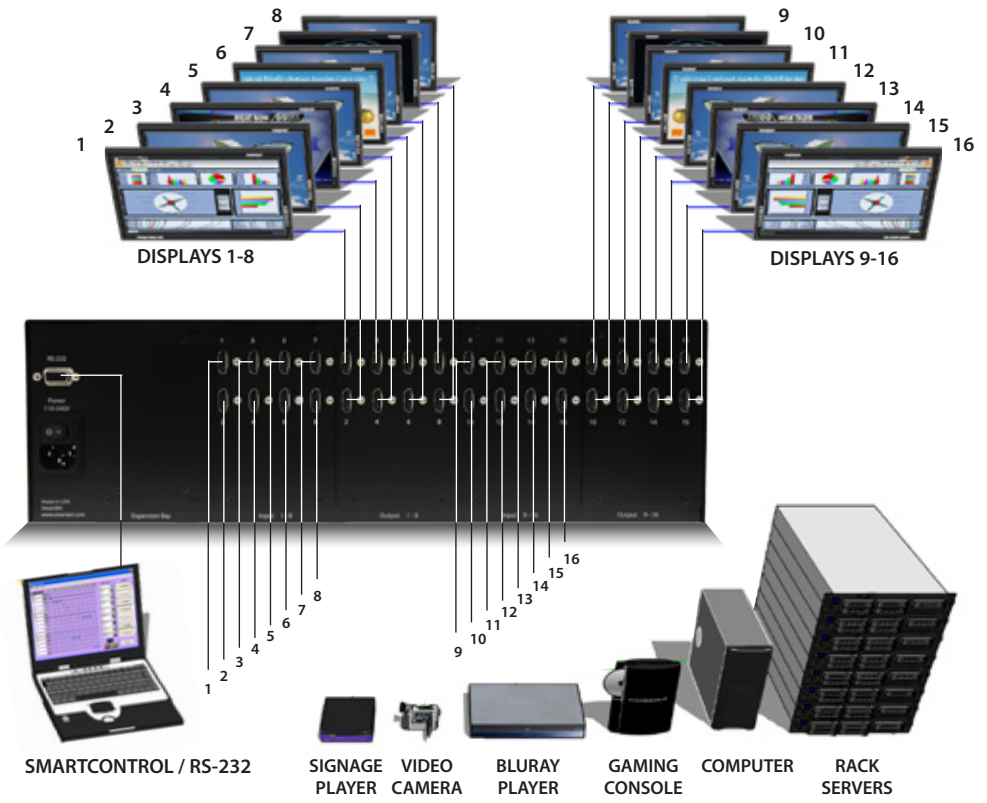
Applications

- Corporate or Educational Presentations
- Financial (Remote Servers/User Control)
- Call Centers for Technical Support
- Industrial (Long-Range Workstation Isolation)
- Airport Installations (Air Traffic Control/Passenger Information)
- KVM Extension where Exceptional Quality of Signal is Crucial
- Medical (Remote Operation Away from Sensitive/Magnetic Equipment)
- Recording (for Large Studios where Editing/Mixing Stations are Compact and/or Require Complete Silence)

Hardware Installation

1. Turn off all input devices and displays.
2. Connect the male to male HDMI extension cables to the input devices and to the "IN" ports on the HDR8X8/HDR16X16.
3. Connect the displays to the "OUT" ports on the HDR8X8/HDR16X16.
4. Connect the power cord and power-on the HDR8X8/HDR16X16.
5. Power on the input devices and the displays.

Diagram for HDR16X16 Shown

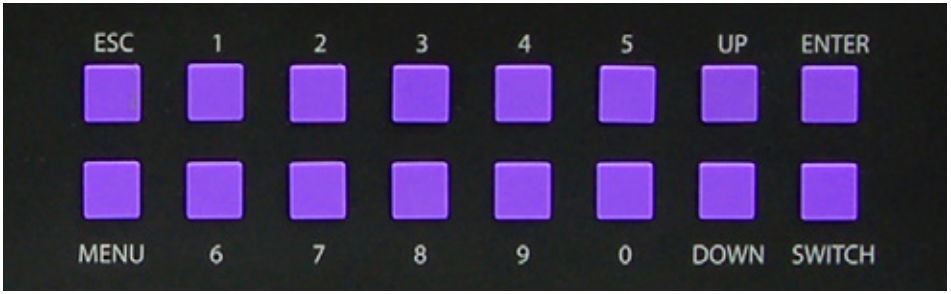


Controlling the HDR8X8/HDR16X16

There are multiple ways to control the HDR8X8/HDR16X16: via the front panel, via the SmartControl software, via RS232 commands (with AMX, Crestron), and with a TCP-IP module.

Using the Front Panel Control

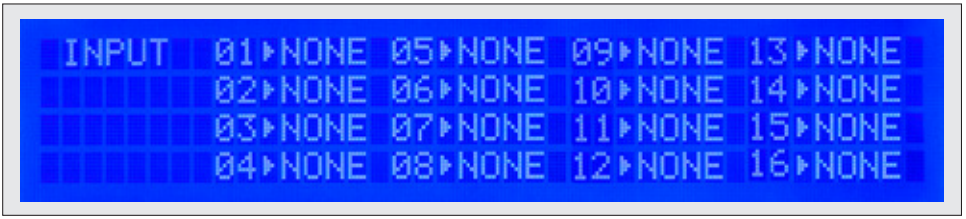
Front Panel Buttons



NOTE: To lock the front panel buttons to avoid any accidental changes, press ESC + MENU + ENTER + SWITCH at the same time. The display will indicate that it is locked. Repeat the procedure to unlock the front panel.

During normal operation, you will see a list of ports on the front panel display.

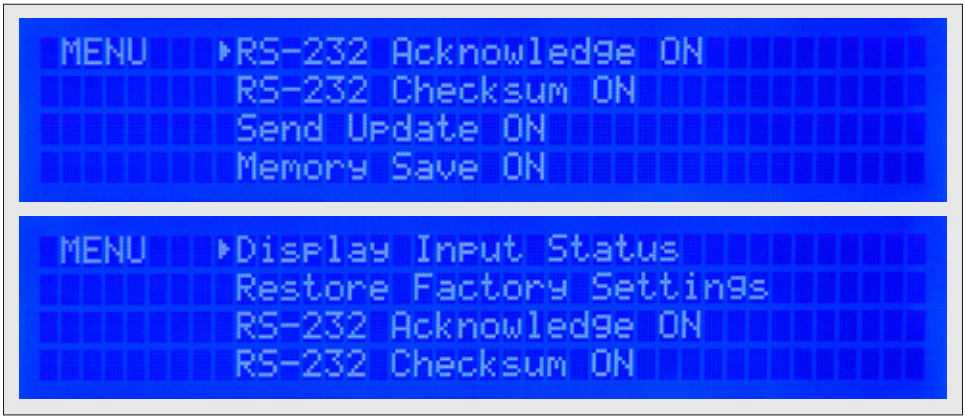
Default Display HDR16X16


INPUT 01▸NONE 05▸NONE 09▸NONE 13▸NONE
02▸NONE 06▸NONE 10▸NONE 14▸NONE
03▸NONE 07▸NONE 11▸NONE 15▸NONE
04▸NONE 08▸NONE 12▸NONE 16▸NONE

To assign an output to an input, press SWITCH. A blinking block cursor will appear. Use UP and DOWN to select the input that you would like to assign. Once the cursor is over the desired input port, press ENTER to enter editing mode. Press UP and DOWN to select the output port. Once you have selected an output, press ENTER to save the configuration. To escape from editing mode, press ESC.

IMPORTANT: Because HDCP takes time to negotiate, when switching ports, wait 2 seconds for the process to complete. Failure to do so may cause an error with the HDCP and the HDR8X8/HDR16X16 may lock up.

Main Menu



To view the menu, press MENU. There are 6 menu options available:

RS-232 Acknowledge - Sets the HDR8X8/HDR16X16 to send a confirmation that an RS-232 command has been received.

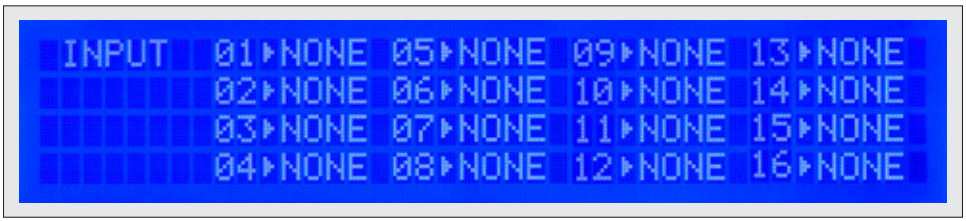
RS-232 Checksum - Sets the HDR8X8/HDR16X16 to verify all RS-232 data for errors in transmission.

Send Update - Sets the HDR8X8/HDR16X16 to send an RS-232 command back to the controller when the configuration is changed via the front panel or remote control (optional).

Memory Save - Sets the HDR8X8/HDR16X16 to save the configuration when powered off.

Display Input Status - This displays the status of the inputs. If no input is present, the display will read NONE. This is the default view.

Input Display


INPUT 01▸NONE 05▸NONE 09▸NONE 13▸NONE
02▸NONE 06▸NONE 10▸NONE 14▸NONE
03▸NONE 07▸NONE 11▸NONE 15▸NONE
04▸NONE 08▸NONE 12▸NONE 16▸NONE

Restore Factory Settings - Sets the HDR8X8/HDR16X16 to the default factory configuration.

Using the SmartControl Software

Find the Installation CD that came with your HDR8X8/HDR16X16 unit. This CD has the SmartControlPro software that you will need in order to control the unit using a computer.

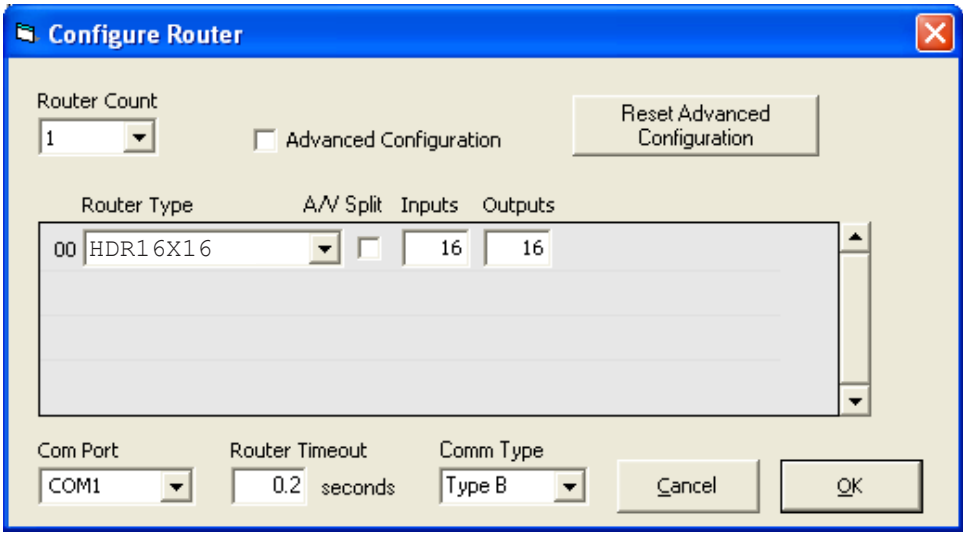
Insert the CD into your CD-ROM. On the CD you should see:

- SmartControl Pro Installer.exe
- SmartControl Pro Help File
- HDR8X8/HDR16X16 Manual in PDF format

Double click SmartControlPro.exe in order to initiate software installation. Click Install. After installation has completed, click CLOSE.

In order to use the software, click on the START button>Programs>SmartControl Pro. There you should see a help file, the SmartControl Pro launcher as well as a shortcut to uninstall SmartControl Pro. Click on SmartControl Pro in order to launch the software.

When the software starts you will see a screen like this (HDR16X16 Shown):



Using the SmartControl Software (continued)

Advanced Configuration: If you have more than one Router installed you will want to check this box.

Router Type: Select "HDR8X8/HDR16X16"

Inputs/Outputs: Enter the number of Inputs/Outputs your HDR8X8/HDR8X8/HDR16X16 has. The HDR8X8/HDR16X16 can have up to 8/16 inputs and 8/16 outputs.

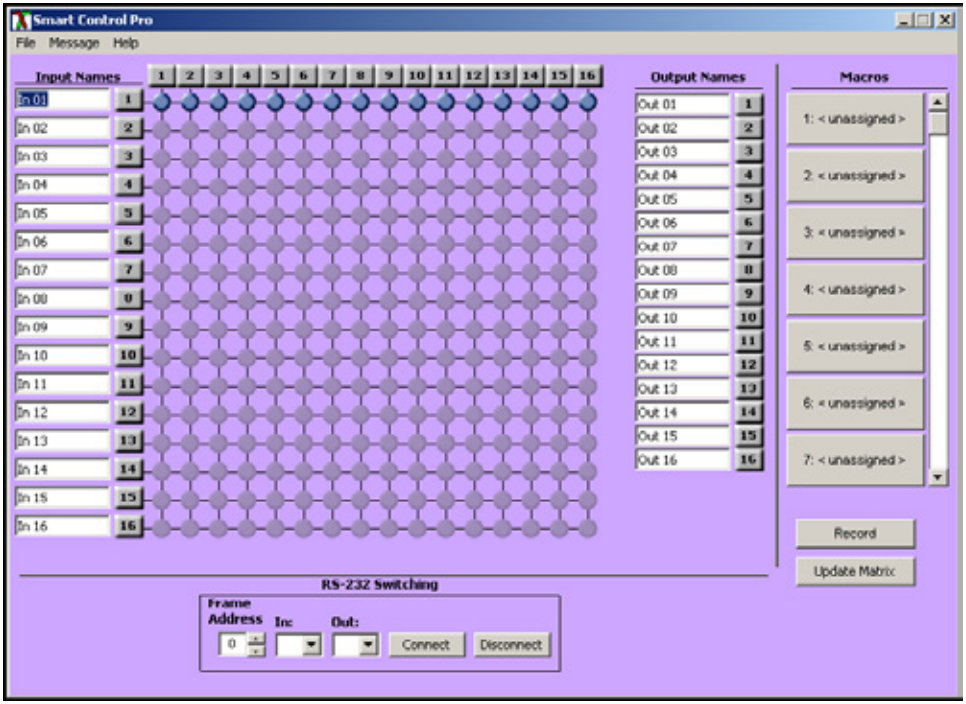
Com Port: Select the appropriate com port that your computer is using to access the router.

Router Time out: By default this is 0 meaning the computer acknowledges commands almost instantly. Sometimes a computer takes longer to respond. This setting should be left at 0. If you need to change it, it should be no higher than 0.2.

After you have entered in the necessary information click OK. This will now take you to the Main Routing Window where you can route the different video/audio connections.

Using the SmartControl Software (continued)

Main Routing Window



On this screen you will notice the input buttons running down the left side while the output buttons run across the top. They are each labeled 1 through 8/16.

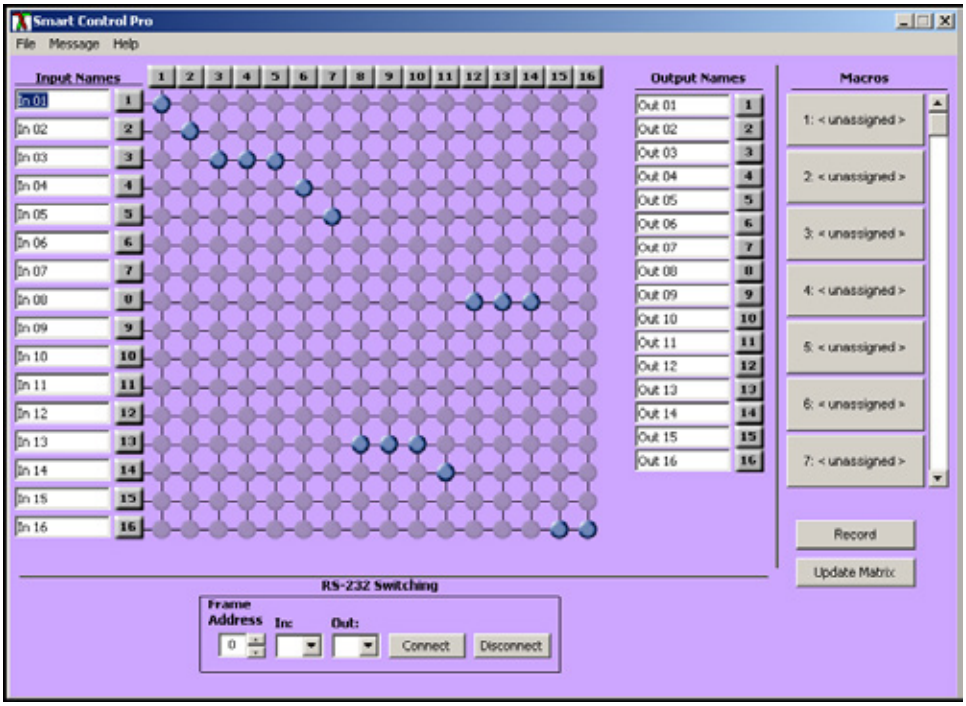
Note: The three small colored buttons at the lower right labeled ALL, VIDEO, and AUDIO are not available if AV Split was not checked when you configured your router.

Using the SmartControl Software (continued)

The Main Routing Window enables you to control the router(s) connections by means of the Crosspoint panel, the button panel, or with pre-recorded routes called macros.

Crosspoint Panel: This is probably the simplest way to route the connections. Simply click on the cross point itself. The input on the left will then be routed to the output above.

Note: Inputs can be routed to several different outputs, but each output can only have a single input at any one time. So you can have several connections horizontally but not vertically.



Using the SmartControl Software (continued)

The Button Panel:

These are the numbered buttons across the top and left sides. Click an output button on the top, and then click an input button on the left.

Options for using the Button Panel

- **Output Options:**
  To select multiple outputs next to each other, click on one output, then hold the shift key down and click the last output. When the input is clicked, it is routed to all selected outputs.

  To select multiple outputs individually, hold the control key down and click on any number of outputs. When the input is clicked, it is routed to all selected outputs.

- **Input Options:**
  To route an input to all the outputs at once, hold the control key down and click on an input.

  To leave the outputs selected after the route is made, hold the shift key down and click on an input.

Using the SmartControl Software (continued)

Macros: This section of the window is used to save and play back macros. Macros store a set sequence of routes.
To record a macro:

1. Click on the Record button (last button shown). A blinking "recording" message below this button will be displayed to indicate that all routes are being recorded.

2. Select the desired crosspoints. There is no limit on the number of routes you may record.

3. If you click a macro button while in the record mode, the macro will be executed, and these routes will be added to the recording. This makes it possible to combine the routes of two or more macros into one bigger macro.

4. When finished, click the "Save Macro" button. You will be instructed to then click on one of the macro buttons. Doing this will save the recorded routes to that button.

   To cancel saving the macro, click the "Cancel Save" button.

5. To play back a macro, simply click on one of the 50 macro buttons. Use the scroll bar to bring any of these into view.

6. The macros are automatically saved in the current configuration file. They are also saved when you select the File/Save Configuration... menu.

   To save macros in a separate file for a special purpose, select the File/Save Macros...menu.

Optional Control Methods

IR: Many system professionals prefer the IR control interface because it offers greater flexibility to manage the HDR8X8/HDR16X16 at a distance. In some cases, the displays will not be visible from the matrix. In these situations it is necessary to control the matrix with Infrared control.

RS-232: Controlling the HDR8X8/HDR16X16 has never been simpler with SmartControl software. With SmartControl, you can assign a unique name to each port on the HDR8X8/HDR16X16, as well as each display, customizing projects to meet your needs. Although all the functions of the matrix are available locally on the front panel of the HDR8X8/HDR16X16, using SmartControl allows for customization of all the matrix functions.

TCPIP (SMTCP): Remote control is essential to real-time management of the HDR8X8/HDR16X16. SmartAVI's SMTCP module is the perfect solution to effective remote management. Simply connect the SMTCP module to the HDR8X8/HDR16X16 and connect from anywhere on the internet. When you need to make a change, but can't be there in person, the SMTCP makes remote control a snap.

Using the IR Remote Control (optional)

You have the option of controlling the HDR8X8/HDR16X16 via Remote Control. The remote is used to control the HDR8X8/HDR16X16. The SM-EYE must be connected to the HDR8X8/HDR16X16 (this is an optional connector not always available in all boxes) in order to interface the remote control with the matrix. The way the remote control the matrix is as follows:

Xx<enter>yy<enter>
When XX is the output , YY is the input

To change the routing of the signals,
For example, to set output 3 to input 2 press "0" + "3" + ENTER, then press "0" + "2" + ENTER. If a wrong button is pressed, the user must either press the ESC button or wait 5 seconds before restarting the sequence.

Using RS-232 Control (optional)

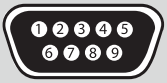
How to properly create an RS-232 connection between a PC and most SmartAVI RS-232 compliant devices

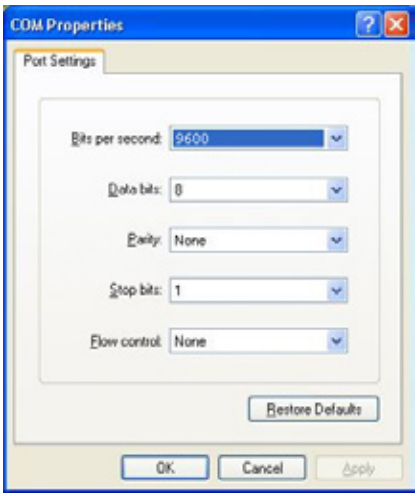
Establish a connection to your RS-232 compliant device:

1. Connect a straight through male to female RS-232 cable (shown on right) to the RS-232 connector on the PC.
2. Connect the other end of the cable to the RS-232 compliant device.
3. Power on the device.

Male to Female Straight Cable (not provided)

RS-232 SPECIFICATIONS

CONNECTOR	PIN	NAME	DESCRIPTION
DB9 MALE - RECEIVE 	2	RxD	Receive Data on DB9 Male
	3	TxD	Transmit Data on DB9 Male
	5	SGND	Ground
DB9 FEMALE - TRANSMIT	2	TxD	Transmit Data on DB9 Female
	3	RxD	Receive Data on DB9 Female
	5	SGND	Ground



Hyperterminal Settings

Setting up the Terminal application:

1. Open Hyperterminal on the PC. (or use the terminal client of your choice)
2. Use the default settings to create a connection to the device (see settings on left). Settings MUST match those shown on the lower right.
3. Be sure that Flow Control is ***None***.
4. The output of the device will be the same as the PC.

Using RS-232 Control (continued)

There are two primary modes of operation for the HDR8X8/HDR16X16: Command Mode and Debug Mode. When connecting to the HDR8X8/HDR16X16 via RS-232, it will start in Command Mode (see Command Mode p. 19 for options). Debug Mode is a more user-friendly way of operating the HDR8X8/HDR16X16 and includes instructional menus. The following section details the use of the Debug Mode.

When you connect to the HDR8X8/HDR16X16 to a computer via an RS-232 connection, you will see the following screen (results from HDR16X16 shown):

```
SmartAVI HDMI 16X16 ver 12.06.11#1
```

To enter Debug Mode type "d on <enter>" and you will see the following prompt:

```
d on
Debug mode:
DBG>
```

To exit Debug Mode (and enter Command Mode) type "d off <enter>"

```
DBG>d off
Command line debugging disabled.
Type "d on" to re-enable.
```

To display the HDR8X8/HDR16X16 information including crosspoint data, type "info <enter>"

```
DBG>info
================================================================

SmartAVI

HDMI 16X16
fw ver. 12.06.11#1
Frame Address: 0

OUT     IN      IN STATE        OUT_ENABLED
================================================================
1       1       HDMI*           YES
2       1       HDMI*           YES
3       1       HDMI*           YES
4       1       HDMI*           YES
5       1       HDMI*           YES
6       1       HDMI*           YES
7       1       HDMI*           YES
8       1       HDMI*           YES
...
16      1       HDMI*       YES
Note: an asterisk (*) denotes that the signal is HDCP encrypted.
```

Using RS-232 Control (continued)

To display the help menu for a list of commands, type "? <enter>"

```
DBG>?
================================================================================
 Command Line Interface Help:

   d            Enable/Disable debug    d  [on][off]
   sw           Switch Port             sw [output] 1-16 [input] 1-16
   br           Broadcast Port          br [input] 1-16
   om           Set output mode         om [output] [mode# (0-2) | ?]
   o            Enable/Disable Output   o  [output] [0 = disable | 1 = enable
   q            Query Crosspoints
   h            Toggle Hotplug          h  [input]
   reset        Restore Factory Settings
   boot         Reboot matrix
   info         Display matrix info
   edid         Manage EDID
   help         Command list
   ?
================================================================================
```

To switch ports, type "sw [output] 1-16[input] 1-16 <enter>"

```
DBG>sw 2 2
Switched Output 2 to Input 2
```

To set the output mode, type "om [output] [mode# (0-2) | ?] <enter>"

```
DBG>om 1 0
HDCP is now in mode 0 on output 1.
```

To set the broadcast port, type "br [input] 1-8<enter>"

```
DBG>br 2
```

To manage the EDID modes, type "edid <enter>" and you will see the following prompt:

```
DBG>edid
EDID Mode:
EDID>
```

To learn the EDID, type "learn <enter>"

```
EDID>learn
Successfully learned EDID!
```

To set the EDID to factory defaults, type "savi <enter>"

```
EDID>learn
Successfully learned EDID!
```

To exit the EDID prompt, type "exit <enter>"

```
EDID>learn
Successfully learned EDID!
```

Using RS-232 Control (continued)

Command Mode: Command Mode allows raw commands to be sent to the HDR8X8/ HDR16X16 to control its various functions without the use of a menu or prompt. This mode is intended for advanced use only.

There are two types of commands that you can issue the HDR8X8/HDR16X16: Commands with CHECKSUM and Commands without CHECKSUM. The CHECKSUM is a method of error correction that ensures the command has been properly transmitted to the HDR8X8/HDR16X16. However, it is not necessary to perform the CHECKSUM in most cases.

Commands with CHECKSUM begin with //
Commands without CHECKSUM begin with \\

Sending Commands WITH CHECKSUM

Comm Port Settings:
- Baud Rate 9600
- Start Bits 1
- Data Bits 8
- Parity None
- Stop Bits 1

1) To set a video crosspoint:
   //FxxMyyIzz<CHK><CR>
   e.g. to set video input 3 to output 12 on a router with frame address "0" send the command: //F00M12I03<0x42><CR>

2) To set RS-232 crosspoint:
   //FxxRyyIzz<CHK><CR>

3) To disconnect RS-232 crosspoint:
   //FxxDyyIzz<CHK><CR>

4) To set new frame address:
   //FxxFnn<CHK><CR>

Using RS-232 Control (continued)

Command Mode continued:

5) To query crosspoints from PC:

//FxxU<CHK><CR>

- If all outputs are connected to input 1 then a 4x4 Matrix will respond with <0x80><0x80><0x80><0x80><CR>
- The router will send back one byte for each output and the string ends with a <CR>. The first byte sent is Output #1. In the example above, since there are 5 bytes total, we know that there are 4 outputs.
- To calculate the input number, the router sends the input number with the 7th bit set.

0x80 = "1000 0000" input 0
0x81 = "1000 0001" input 1
…
0x8F "1000 1111" input 15

Notes:

When successful, commands #1-4 will acknowledge by sending the checksum with nibbles swapped & <CR><LF>
e.g. checksum of 0x24 acknowledges with <0x42><CR><LF>

IMPORTANT

CALCULATING THE <CHK>

<CHK> stands for CHECKSUM: the <CHK> value is calculated by performing an XOR of the full command string. For example: //F00M12I03 will XOR to the hexadecimal value 0x42, therefore the value of <CHK> is 0x42.

Using RS-232 Control (continued)

Command Mode continued:

Sending Commands WITHOUT CHECKSUM

1) To set a video crosspoint:
   \\FxxMyyIzz<CR>
   e.g. to set video input 3 to output 12 on a router with frame address "0" send the command: \\F00M12I03<CR>

2) To set RS-232 crosspoint:
   \\FxxRyyIzz<CR>

3) To disconnect RS-232 crosspoint:
   \\FxxDyyIzz<CR>

4) To set new frame address:
   \\FxxFnn<CR>

5) To query crosspoints from PC:
   \\FxxU<CR>
   • If all outputs are connected to input 1 then a 4x4 Matrix will respond with <0x80><0x80><0x80><0x80><CR>
   • The router will send back one byte for each output and the string ends with a <CR>. The first byte sent is Output #1. In the example above, since there are 5 bytes total, we know that there are 4 outputs.
   • To calculate the input number, the router sends the input number with the 7th bit set.
   0x80 = "1000 0000" input 0
   0x81 = "1000 0001" input 1
   …
   0x8F = "1000 1111" input 15

Using the SMTCP module (optional)

The SMTCP-2 is an RS-232 control module that allows most SmartAVI switching matrixes to be controlled remotely via HTTP or TELNET. Manage the switching functions of your matrix with ease from anywhere in the world. With the SMTCP-2 you can save up to 10 preset input/output configurations for easy access. TELNET access provides transparent command control of your matrix, perfect for use with automated third-party control software.

Features

- Supports HTTP and TELNET control
- 10/100 Ethernet Interface
- Up to 10 user-definable configurations
- Password Protected
- Up to 5 Users can Control the Matrixes
- IP Configuration via TCP/IP and RS-232
- Flexible control of several types of matrixes

Technical Specifications

Power	*External 100-240 VAC/5VDC2A @10W*
Dimensions	*2.8125"W x 1"H x 3.375"D*
Weight	*0.5 lbs*
Approvals	*UL, CE, ROHS Compliant*
Operating Temp.	*32-131°F (0-55 °C)*
Storage Temp.	*-4-185 °F (-20-85 °C)*
Humidity	*Up to 95%*

SMTCP-2 Front

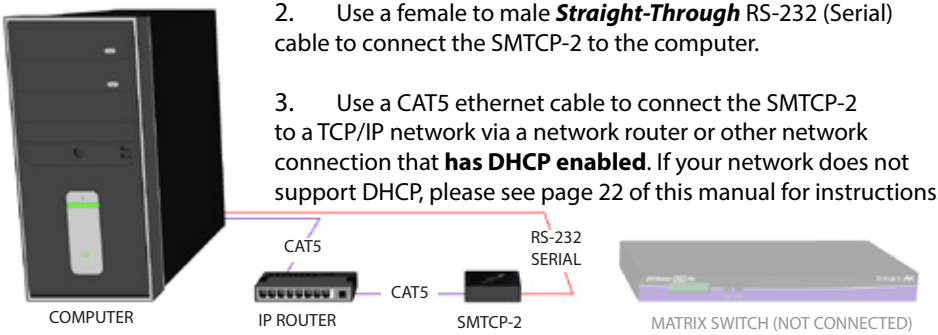
SMTCP-2 Rear

Using the SMTCP module (continued)

Connecting to the SMTCP-2 for the first time

The first time you connect the SMTCP-2, you will need to perform the following steps to set the initial configuration. This includes establishing an HTTP connection and manually setting the IP address for the SMTCP-2.

1. Power off all devices.



2. Use a female to male ***Straight-Through*** RS-232 (Serial) cable to connect the SMTCP-2 to the computer.

3. Use a CAT5 ethernet cable to connect the SMTCP-2 to a TCP/IP network via a network router or other network connection that **has DHCP enabled**. If your network does not support DHCP, please see page 22 of this manual for instructions.

4. Power on the computer and run a terminal program such as Hyperterminal to open a serial connection to the SMTCP-2 using the standard 9600 baud, 8, N, 1 configuration.
5. Power on the SMTCP-2. When powered on, it will obtain an IP address automatically via DHCP from the network.
6. The IP information for the SMTCP-2 will be displayed on the terminal screen as follows:

```
**************************
* SmartAVI control is UP *
*   version 10.12.20#6   *
**************************

addr:192.168.1.102
Mask:255.255.255.0
gtwy:192.168.1.1

**************************
```

NOTE: the above IP address is for demonstration purposes only. Actual results may be different.

7. The IP address shown must be used to connect to the SMTCP via HTTP.

Using the SMTCP module (continued)

8. Open a web browser and navigate to the IP address that is indicated. You will be prompted to enter a username and password.

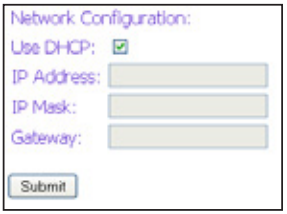
9. The default login (case sensitive) is as follows:

User ID: *Admin*
Password: *Pass*

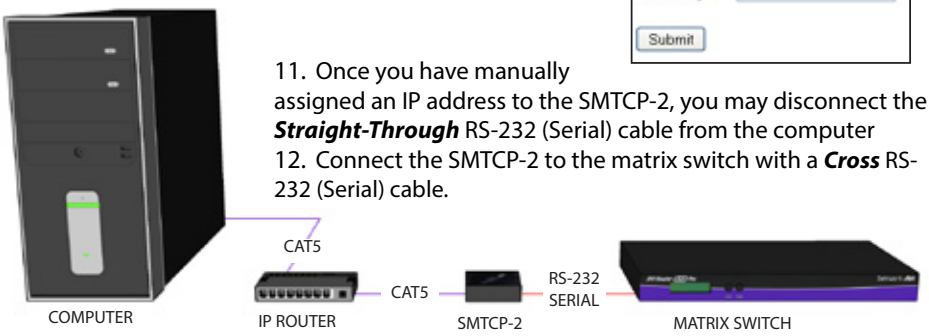
10. Once connected to the SMTCP-2, you will see the following menu of options:

1. Matrix
2. Frame Address
3. Device Config
4. Network Setting
5. User Administration

For the initial setup, click the ***Network Setting*** button and manually assign an IP address to the SMTCP-2. This will assure that the SMTCP-2 will always have the same IP address. Be sure to choose an address that will not conflict with any other devices on the network, and that the address is not in the range of the DHCP server.



11. Once you have manually assigned an IP address to the SMTCP-2, you may disconnect the ***Straight-Through*** RS-232 (Serial) cable from the computer
12. Connect the SMTCP-2 to the matrix switch with a ***Cross*** RS-232 (Serial) cable.



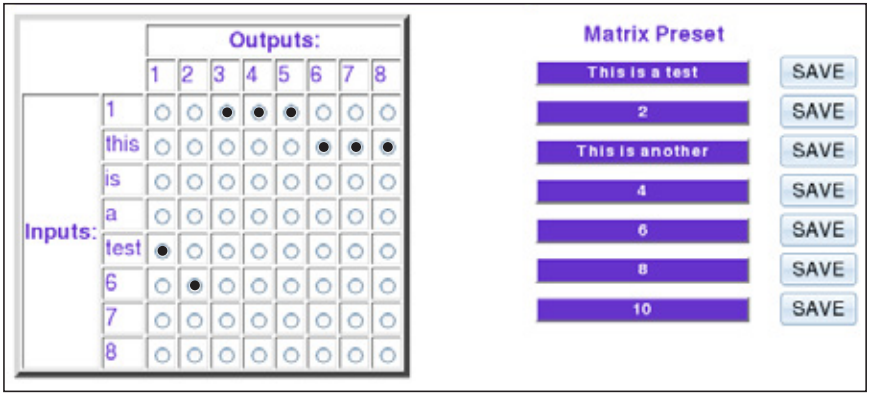
It is also recommended that you set a password for the SMTCP-2 at this point. To set the password (and/or username), click on the ***User Administration*** button, enter the password and click *Submit*. This sets the password for the HTTP interface only.

Using the SMTCP module (continued)

Controlling the SMTCP-2 via HTTP

Once you have completed the Initial Setup for the SMTCP-2, you can now begin configuring it for your matrix. The following details the individual menu options in the web interface:

Matrix Menu

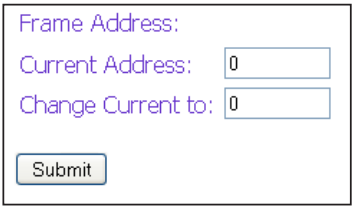


The matrix menu allows you to set the crosspoints for the matrix. Crosspoints are used to route signals from the individual inputs to individual outputs. The output channels can only have one input, but each input can have several outputs.

Example shown in diagram:
Input 1 to Outputs 3,4,5
*Input **this** to Outputs 6,7,8*
*Input **test** to Output 1*
Input 6 to Output 2

The Matrix Preset option allows you to save and recall crosspoint configurations with the push of a button. To save a preset, simply configure your crosspoints and press the SAVE button next to the desired preset. To recall a preset, simply click on the button with its name. To edit the preset names, see the ***Device Config*** menu.

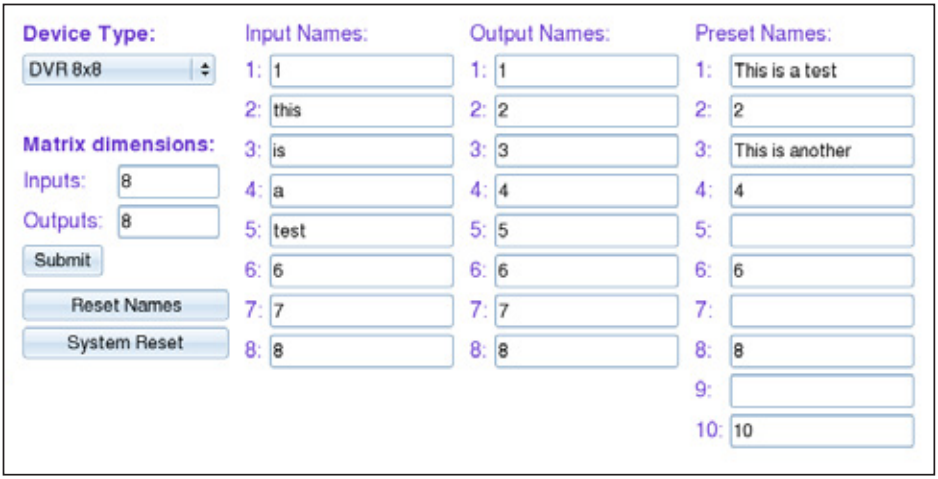
Frame Address Menu



The frame address menu allows you to set the frame address of the current matrix switch. Frame addresses allow commands to be sent to different matrixes in series. For more information on the specific commands available, please see the instructions for your matrix switch.

Using the SMTCP module (continued)

Device Config Menu

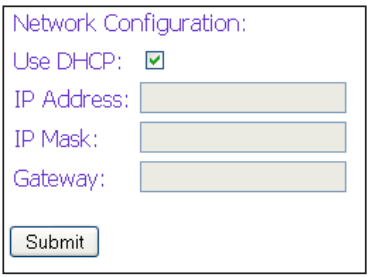


The device configuration menu allows you to select the type of matrix you are using, specify the dimensions of the matrix, and assign names to the inputs, outputs and presets, reset the names and reset the system to factory defaults.

To begin, set the type of device you are using from the drop-down menu labeled Device Type and specify the Matrix Dimensions. After specifying the Matrix Dimensions, press the Submit button to make the changes.

Once the type of matrix is entered, you can assign names to each of your inputs, outputs and presets. The preset names are used in the Matrix Menu for quick storage and retrieval of matrix configurations. Leaving a preset blank will exclude it from the Matrix Menu.

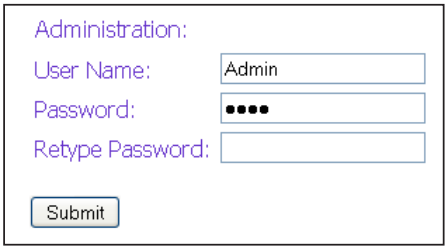
Network Setting Menu



The network setting menu allows you to assign a static IP address to the SMTCP-2. It is recommended that you statically assign an IP address to avoid any future conflict or connectivity issues with DHCP.

Using the SMTCP module (continued)

User Administration Menu



The User Administration menu allows you to change the user name and password for the SMTCP-2. The default user name for the SMTCP-2 is Admin and the password is Pass.
Once you modify the login information, press the Submit button to make the changes.

Controlling the SMTCP-2 via TELNET

Commands may be sent transparently to the matrix via a TELNET connection to the SMTCP-2. To use this function, use a telnet client such as Hyperterminal or PuTTY to connect to the IP address of the SMTCP-2. You will be prompted for a username and password - this will be the same as the login information via HTTP. Once logged in, the SMTCP-2 is ready to accept the standard RS-232 commands. For a list of the available commands, please see the user manual for the matrix you are using. Although the commands are not echoed to the client display, the commands are being issued to the matrix. Should you need commands to be echoed, please see the instructions for your TELNET client.

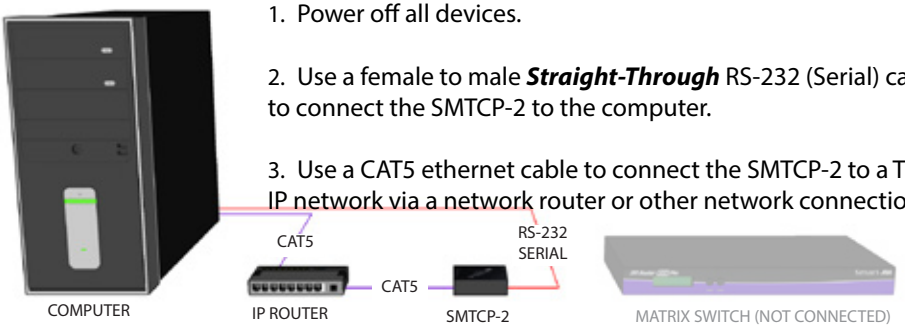
Upgrading the SMTCP-2

To updgrade the SMTCP-2 with the latest firmware, contact your sales representative to obtain the firmware upgrade file or visit the SMTCP-2 product page at www.smartavi.com. The version information is listed on the Main Menu. Once you have the file, use an FTP client, preferably TFTP, to navigate to the IP address of the SMTCP-2. To upload the file to the SMTCP-2, navigate to the /var/ directory, and upload the file ***firmware.img*** - **IMPORTANT: the file MUST BE NAMED *firmware.img*** for the upgrade to work properly. Again, the full path **MUST BE** /var/firmware.img. Once the file has been copied, restart (power off and power on) the SMTCP-2. Once restarted the firmware update will be installed. To verify the upgrade, see the version information listed on the Main Menu.

Using the SMTCP module (continued)

Connecting to the SMTCP-2 for the first time WITHOUT DHCP

The first time you connect the SMTCP-2, you will need to perform the following steps to set the initial configuration. This includes establishing an HTTP connection and manually setting the IP address for the SMTCP-2.



1. Power off all devices.

2. Use a female to male ***Straight-Through*** RS-232 (Serial) cable to connect the SMTCP-2 to the computer.

3. Use a CAT5 ethernet cable to connect the SMTCP-2 to a TCP/IP network via a network router or other network connection.

4. Power on the computer and run a terminal program such as Hyperterminal to open a serial connection to the SMTCP-2 using the standard 9600 baud, 8, N, 1, None Flow Control configuration.
5. While powering on the SMTCP-2, press and hold Shift-1 (exclamation) until a command prompt appears.
6. Press enter to show the network configuration help screen as follows:

```
Command:

     É͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸»
     º Network Configuration help º
     È͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸͸¼
Enter a command followed by optional parameters

Commands are SET DHCP INFO RESET and QUIT/SAVE

SET command allows you to change the network configuration:
SI xxx.xxx.xxx.xxx = Set IP Address
        (if IP address is not entered then DHCP is ENABLED)
SM xxx.xxx.xxx.xxx = Set IP Mask
SG xxx.xxx.xxx.xxx = Set Gateway Address
RN                 = Reset Network Params:
                       IPADDR  = 192.168.0.2
                       IPMASK  = 255.255.255.0
                       GATEWAY = 192.168.0.1
DHCP ON            = Enable DHCP
DHCP OFF           = Disable DHCP
INFO               = Display network configuration
RESET              = Factory reset

QUIT               = Saves configuration and quits
SAVE               = Same as QUITNOTE: the above IP address is for demonstration purposes
only. Actual results may be different.
```

7. Follow the instuctions to manually assign an IP address to the SMTCP-2.
8. See page 19 for instructions on how to connect to the SMTCP-2 via HTTP.

Limited Warranty Statement

A. Extent of limited warranty

1. *SmartAVI Technologies, Inc. warrants to the end-user customers that the SmartAVI product specified above will be free from defects in materials and workmanship for the duration of 1 year, which duration begins on the date of purchase by the customer. Customer is responsible for maintaining proof of date of purchase.*
2. *SmartAVI limited warranty covers only those defects which arise as a result of normal use of the product, and do not apply to any:*

   a. Improper or inadequate maintenance or modifications

   b. Operations outside product specifications

   c. Mechanical abuse and exposure to severe conditions
3. *If SmartAVI receives, during applicable warranty period, a notice of defect, SmartAVI will at its discretion replace or repair defective product . If SmartAVI is unable to replace or repair defective product covered by the SmartAVI warranty within reasonable period of time, SmartAVI shall refund the cost of the product.*
4. *SmartAVI shall have no obligation to repair, replace or refund unit until customer returns defective product to SmartAVI.*
5. *Any replacement product could be new or like new, provided that it has functionality at least equal to that of the product being replaced.*
6. *SmartAVI limited warranty is valid in any country where the covered product is distributed by SmartAVI.*

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C. Limitations of liability

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D. Local law

To the extent that this warranty statement is inconsistent with local law, this warranty statement shall be considered modified to be consistent with such law.

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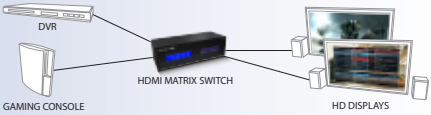
HDMI MATRIXES



The rack-mountable HDR series of HDMI switching matrixes, available in 4X4, 8X8, 16X16 and 32X32, provide HDMI switching up to 40 feet. You can switch to any source locally or remotely via a RS-232, IR or TCP/IP connection.

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HDR16X16 Switch HDMI 1080p and digital audio from any 16 HDMI sources to 16 remote HD displays.

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